assume a yellow, brownish-yellow, green, and bluish-green, orange, deep orange, and, lastly, a purple red colour, according as the temperature is raised and kept up.

We have verified the following fact, stated by Golfier Besseyre: — On triturating gold powder chemically pure with soot, mixing it intimately with a composition of glass containing lead (commonly called flint glass), and melting the whole in a glass-furnace, a glass is produced, perfectly colourless at top, and presenting successively the following colours from top to bottom, viz.:—greenish-yellow, topaz-yellow, yellowish-brown, dark reddish-brown, and is even in some parts towards the bottom rather dull. M. Pohl has observed, that flint-glass mixed with a small quantity of perchloride of gold, generally appears green after melting and cooling, some parts only having a red tint. On the contrary, on melting together glass containing a very small proportion of red-lead and a small quantity of borax, with a solution in *aqua regia* of six ducats to 4 lbs. of fritt, after remaining in a state of fusion for six or seven hours, a perfectly colourless glass is obtained, which when worked into very thin plates, takes, upon cooling, a fine red colour. Knox states that gold melted with glass stains it green, which is deeper in proportion to the quantity of silica it contains, and that if the temperature be raised it changes to pale red.

When glass stained by means of gold is heated too often, or exposed to too high a temperature, it takes a light brown colour, loses its transparency, and will not again take a red colour, on being looked through, it will be seen that some parts are coloured a fine blue, and bluish green; and grains of gold of various sizes may be seen with the naked eye (this state bears the greatest analogy to the phenomenon presented by a solution of gold slightly heated with oxalic acid). Pieces of colourless glass containing gold, cooled very suddenly, cannot by any known means be made to take a red colour, and remain perfectly colourless.

In conclusion we may state:—

1st. That in order to stain glass a red colour by means of gold, it is not necessary to use Cassius purple, or to add to the chloride of gold either oxide of tin or oxide of antimony.

2ndly. That by the addition of chloride of gold, or even metallic gold in minute particles, either to a very fusible glass of lead, or soda glass, containing a very small portion of minium (red oxide of lead), glass may be produced which will take a red colour whilst being worked.

3rdly. That if Cassius purple be employed, it will be decomposed during the fusion of the glass, and metallic gold will be precipitated from it.

4thly. That on grinding metallic gold to fine powder upon porphery with hard substances, a red coloured mixture will be produced.

5thly. That the colouring of the glass appears in all probability to arise from gold in a very comminuted state.

Several other metallic bodies present analogous phenomena.

Obtaining a Blue Colour by Oxide of Copper.—It is known that oxide of copper furnishes green or blue solutions, and will also stain glass a fine emerald green and light blue, turquoise blue, and sky blue.

For some years past a white milky glass has been manufactured in Bohemia and Silesia, known under the name of alabaster glass. The composition of this glass does not differ from that of ordinary crystal. (Bohemian crystal is a glass made without lead, with potash for its base.) After the glass has been melted, it is poured off and stirred up. A second charge is then melted, to which is added, when the fusion is complete, the glass previously stirred and cooled, which cools the mass; and as soon as it is melted, it is to be worked at the lowest possible temperature. The glass will be of a milky white, while if the temperature were much raised, it would become colourless and transparent.

If oxide or sulphate of copper be added to a colourless glass, and the temperature is sufficiently high, a transparent glass of a bluish green tint will be obtained. If the operation has been carried on as above stated to obtain a milky glass, it will be of a turquoise-blue colour. Lastly, if this turquoise-blue coloured glass be re-melted, at a high temperature, a transparent aqua-marine blue will be produced.

New Books.

Some account of the Church of St. Mary Magdalene, Taunton; and the Restoration thereof: together with several notices on Ecclesiastical matters. Printed in aid of the fund for the restoration. 8vo. 1845. Vizetelly and Co.

The church illustrated by this beautiful volume is well known to all architectural students and professors, as one of the most magnificent specimens, in a part of the country celebrated for the splendour of its ecclesiastical edifices. The lofty tower, which forms its chief characteristic, is perhaps unsurpassed by any similar example of the architecture of the fifteenth century. In common with many other exquisite ecclesiastical edifices of former days, the church of St. Mary, Taunton, was suffered to fall into decay, by the neglect and apathy of its guardians, until, in the year 1840, the Rev. James Cottle succeeded to the vicarage of the parish. This gentleman, actuated by a warm appreciation of the architectural merits of the church, and feeling the necessity of prompt and decisive measures to preserve it from further dilapidation, proposed in 1842 to expend himself a sum of 3,000*l.*, if the parishioners would supply as much more as might be necessary completely to restore the sacred edifice. This liberal offer was accepted, and (as our readers are probably aware) the work of restoration was commenced, and is now nearly completed, in a manner which reflects the highest credit on all the parties concerned. The total cost, it is found, will exceed 7,000*l.*; and the vicar has undertaken to add 1,000*l.* to the amount he originally offered to expend. Mr. B. Ferrey was employed as the architect on the part of the vicar, and the works executed by the parish, being perfectly distinct from the former, were placed under the superintendence of Mr. R. Carver, the county surveyor.

The present volume has been undertaken by the reverend gentlemen, to whose generous enthusiasm the lovers of ancient architecture are so much indebted, as a record of the success which, in spite of even more than the usual difficulties attending such exertions, has crowned his zeal and perseverance. Besides a minute history of the work of restoration, and a full description of the church, Dr. Cottle's portion of the volume contains much useful information on the antiquities of English churches generally, and their neglected state from the time of the Reformation. It comprises also some remarks on those questions of church discipline which have recently been so much agitated; and to these we may direct the attention of all who are interested in the subject. His strictures on the objectionable "pew system," as compared with that of open seats, are most convincing. A list, with biographical notices, of the archdeacons and vicars, and notices of the principal monuments in the church, complete the body of the work. But its appendices are hardly less interesting. The first of these, entitled "*Historical Notices* of the church, by George Cave," is a clear and discriminating essay on the dates and characteristics of the different portions of the edifice; the second, by Mr. Ferrey, the architect, is called "*Remarks on the Gothic Towers of Somersetshire*," and is full of valuable information on the subject. In addition to these there is an historical essay on the ecclesiastical architecture of England, by Thomas Porch Porch, Esq., A.M.,—a useful summary on that particular topic, but without any particular novelty of treatment;—and, finally, some remarks, by the Rev. Henry Christmas, M.A., on "The Furniture and Ornaments of Churches."

The volume is printed by Messrs. Vizetelly, in a tasteful and elegant manner, and is illustrated by a ground-plan and eight wood-cuts and lithographs, shewing the state of the church, before and since its restoration. Though ready to award sincere approval of the spirit and energy which have actuated the worthy vicar in this "labour of love," we cannot forbear remarking, that he has carried the system of painting, gilding, and ornamentation in the church rather to excess, and thereby rendered what is, and ought to be, subordinate in architectural character and effect, too predominant.

Correspondence.

PUBLIC NECESSARIES.

SIR,—Will you permit me, through the medium of your valuable and widely-circulated journal, to make one or two remarks on a subject which I am not aware of having been touched upon by any other, with the exception of a hint thrown out by your Cork correspondent in No. 139 of THE BUILDER, whose suggestions (on the improvement of habitations for the working classes) appear very good. The great drawback to the carrying out his plans would be the expense; however, I think with care and certain modifications, something might be done in erecting much better abodes for the labouring population. Now, in this stirring period of inquiry as to the best mode of giving greater comfort to the MILLION as regards their abodes, &c., public wash-houses and baths are in course of erection in different parts of our metropolis, still there is one thing wanting to make them complete, which I trust the projectors of these excellent structures will not forget.

The thought has often struck me that there ought to be *public necessaries for men*, in every large town, more especially in huge London, where immense numbers of strangers from all quarters of the globe pour in; and in their perambulations, sight-seeing, &c., when they are perhaps miles away from their temporary abode, where, may I ask, are these conveniences to be found, so *essential* and *necessary* to *health and comfort*? No where, unless they go to an hotel, coffee-house, or some such establishment, which entails expense. Now, to obviate this great evil, I would suggest that there be a sufficient number of public necessaries in each district erected by the parish at their own expense, which would be but trifling. I feel assured no one can deny (who has the welfare of his fellow-creatures at heart), the great benefits which not only strangers, but the public in general would derive, knowing as we do, the thousands of houses inhabited by the lower order who have scarcely any thing in the shape of a privy (and, indeed, *some none at all*), and are little better than pigstyes, where every indecency is committed, and the smells from which effect the whole premises, tainting the atmosphere, and engendering disease amongst the miserable inmates; to every well-regulated mind, the picture is truly disgusting, when we think that all this might be easily rectified.

The whole talk now is *ventilation*, but first I would say, begin by removing such nuisances as these, for of this I am certain, that much *immorality, misery*, and *disease*, found in low and confined districts, in large populous towns, arise from this and other incidental causes.

I have seen the plan as to *public privies* carried out in Scotland, and they answer admirably well.—I am, Sir, &c. A SURVEYOR.

THE STUDY OF LINES.

SIR,—In reply to your correspondent, J. F. I beg to say that the best or even a good work on lines is unquestionably a desideratum, that is, one to shew the various distinct characters of such as can easily be practically described. Sir Isaac Newton said so; and I have been for more than twenty years pointing out the necessity of such a practical work, for which I had formed the plan.

What I have written in THE BUILDER may perhaps tend to shew how little is known on the subject. The "Examination on Lines" has as yet received no answers or remarks, except as accompanying the papers on conic sections.

Lord Brougham referred me to McLaurin's papers; I had indeed seen them many years before, but as it is not possible to make working instruments on the principles he investigates, McLaurin's method not being practically useful, is not what Sir Isaac Newton considered desirable.

Such a practical work as is wanted would be large, but if it could be undertaken so as to ensure an extensive circulation, it might, it is thought, be brought within the means of every artist, mechanist, and mechanic. But who is to do it? I have collected a great quantity of material, which the Society of Arts many years ago, considered they were too poor to undertake the publication of.

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